

Comments for Draft KDB 865664 SAR Measurements 100MHz – 6GHz

Submitted by UL

1. FCC is permitting SAR error compensation for TSL parameter deviations, and, if used, the TSL parameter tolerance can be relaxed to +/- 10% (otherwise +/-5%).

Comment:

I do not know if draft IEEE P1528-2011 provides a better explanation as to how to apply the correction than that given in IEC 62209-2:2011, or if it also only allows the correction to be applied to increase the measured value. FCC guidance may be necessary in this KDB as to how to correctly apply the TSL correction formulae for both head and body SAR measurements.

2. **Comment** Penetration depth is described but not defined (no formula etc). Is this readily available in the standards/reports?
3. The KDB added a repeatability measurement – appears to be repeatability of device positioning – based on measured SAR values. SAR measurement repeatability is evaluated for the highest measured SAR among all configurations tested in a frequency band according to the following:
 - < 0.4 W/kg, additional measurement is not required.
 - ≥ 0.4 W/kg and < 1.2 W/kg, repeat once.
 - ≥ 1.2 W/kg and < 1.5 W/kg, repeat twice.
 - ≥ 1.5 W/kg; repeat at least three times.

These additional measurements must be repeated after the completion of all other device measurements in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for each measurement.

Comments:

Please clarify if the 0.4W/Kg, 1.2W/Kg and 1.5W/Kg thresholds that determine the number of repetitions are measured SAR values (including TSL deviation correction if applied) or SAR values after correction for tune-up power (refer to KDB 447498 draft).

As explained during TCBC workshop, FCC said above repeatability test is a single test on the highest SAR value. However, in this KDB, sounds like it is required to repeat the SAR based upon above threshold for each of frequency band. Please clarify the requirement.

- The estimate higher SAR value can be easily determined based upon frequency Band/separation distance/output power. As indicated above, repeatability tests must be performed AFTER the completion of all other device measurement. Such requirement will create additional burden to the test lab and in term additional time and money for the manufacturer to observe. It is difficult for TCB to validate the requirement on the timing in performing the repeatability tests.
- Do believe the threshold for SAR repeatability tests is too wide and too conservative. Suggest to change the threshold to be started from ≥ 1.2 W/kg and < 1.5W/kg for once; ≥ 1.5 W/kg for twice.

4. The KDB added an explicit requirement for SAR system validation for “real” signals (duty cycle and modulation) to confirm linearity. While not required to be in the report there is the caveat in the KDB that “when questions arise or details are required due to probe conversion linearity concerns relevant parts ... shall be included in SAR reports ...”.

Comment: Guidance as to when probe conversion linearity may be a concern (specific modulation formats or duty cycles/on times?) would be appreciated.

5. The reporting and documentation guidance will be very helpful. Thank you.